

Selecting a Capstone Project Topic

Selecting a Capstone Project Topic – Study Notes

1. Why the Topic Matters

Reason	What it means for you
Relevance	Aligns with current industry trends, academic goals, or personal career aspirations.
Feasibility	Determines whether the project can be completed within the given time, resources, and skill set.
Impact	Increases the chance that your work will be cited, adopted, or lead to further research/implementation.
Motivation	A topic you're genuinely curious about sustains effort through inevitable roadblocks.

2. Core Criteria for a Good Capstone Topic

Criterion	Guiding Questions	Tips
Scope	Is the problem narrow enough to be tackled in 3–6 months?	Break a broad issue into a specific research question or prototype goal.
Originality	Does it add something new (method, dataset, application) or synthesize existing work in a novel way?	Conduct a quick literature scan; look for gaps or “future work” suggestions.
Data Availability	Are the required data sources accessible, ethical, and reliable?	Prefer open-source datasets, APIs, or data you can collect yourself.
Technical Fit	Does the topic match (or stretch) the tools/technologies you've learned?	Choose a project that lets you showcase core competencies while learning one new skill.
Stakeholder Interest	Will a professor, industry partner, or community benefit from the results?	Identify a mentor or sponsor early; their feedback can refine the idea.
Measurable Outcomes	Can you define clear deliverables (report, prototype, model performance, etc.)?	Set SMART (Specific, Measurable, Achievable, Relevant, Time-bound) objectives.

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3. Step-by-Step Process

1. Brainstorm Broad Areas

- List subjects you enjoyed in coursework, internships, or personal projects.
- Include emerging trends (e.g., AI ethics, sustainable tech, digital health).

2. Pre-Screen with a Quick Feasibility Matrix

Idea Data Ready? Tools Known? Time Estimate Mentor Support?

... Yes/No High/Medium/Low 3–4 months Yes/No

- Eliminate ideas scoring low on more than two columns.

3. Conduct a Mini-Literature Review

- Search 5–7 recent papers, conference proceedings, or industry reports.
- Note: problem statement, methodology, datasets, and “future work” sections.

4. Define a Precise Research Question / Project Goal

- Format: *How can/does/what is the effect of [specific technique] on [target domain]?*
- Example: “How does transformer-based sentiment analysis improve patient-reported outcome classification in telehealth chat logs?”

5. Validate with Stakeholders

- Pitch the refined idea to a professor, advisor, or industry contact.
- Gather feedback on relevance, difficulty, and potential impact.

6. Create a Project Charter (1–2 pages)

- **Title**
- **Problem Statement** (2–3 sentences)
- **Objectives** (3 bullet points)
- **Scope & Deliverables** (list)
- **Timeline** (Gantt or milestone table)
- **Resources Needed** (software